



Aviation Maintenance  
Safety Conference  
25-28 April 2005



Naval Safety Center  
Media Products and  
Mech Magazine



# Safety Magazines

THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

## approach

April 2003



**BASH**

Let's Get Ready to Rumble

**Wet & Wild** in San Diego Bay

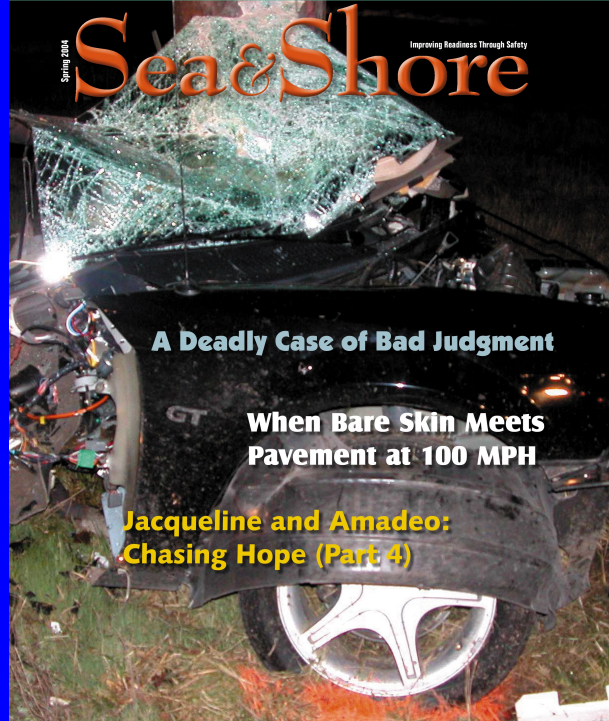
Reducing Mishaps by 50%



## Sea & Shore

Spring 2003

Improving Readiness Through Safety



**A Deadly Case of Bad Judgment**

**When Bare Skin Meets  
Pavement at 100 MPH**

**Jacqueline and Amadeo:  
Chasing Hope (Part 4)**

## GROUND WARRIOR

The Marine Corps' Ground Safety Magazine

Summer 2002

**One Bad Decision  
Can Leave Lasting Scars**

**"No Saved Rounds or Brass"**

**Revised Campaign Plan  
Hits the Street**





# Aviation Flight Safety



(1955)

1,880 addresses

15,609 copies

U.S. military,  
Contractors, Foreign  
Military, and  
Government agencies.

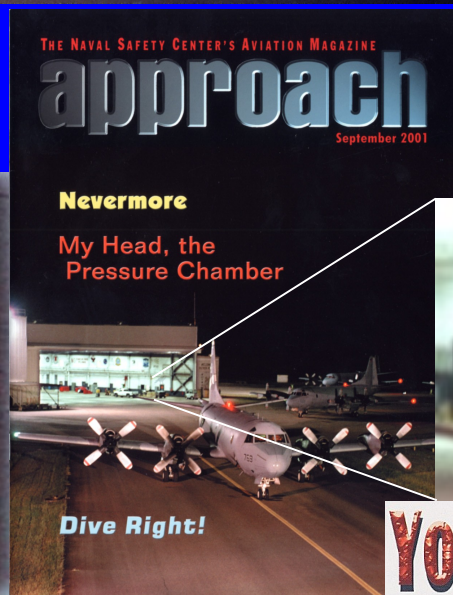
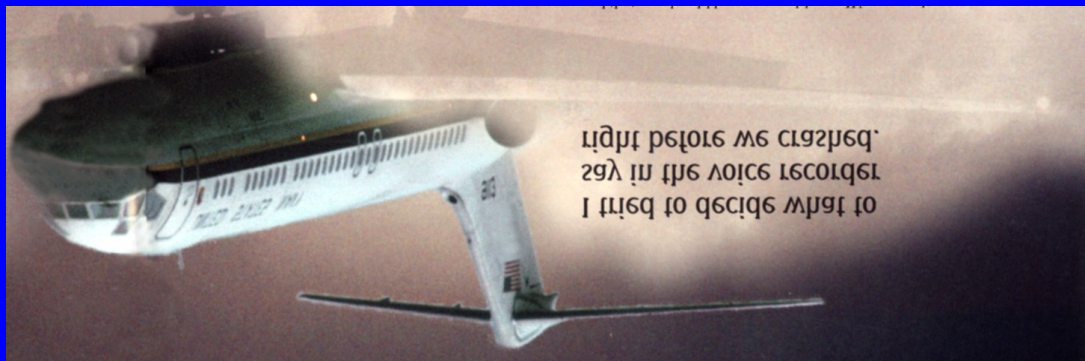


# Features

- “There I was...”  
flight-related stories
- ORM/CRM
- Brownshoes in  
Comix
- Work Zone
- Good, Bad & Ugly
- Bravo Zulus
- Mishap-Free  
Milestones
- Ready Room  
Gouge



# Type Stories



**You, Too, Can Schedule a Mishap**



# Sea and Shore Safety

(1972) Lifeline  
(1985) Safetyline  
(1999) Ashore  
(2004) Sea&Shore

2,870 addresses  
29,040 copies



All DoD branches, other  
federal agencies,  
private vendors, and  
foreign governments

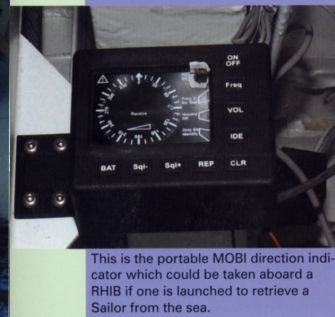
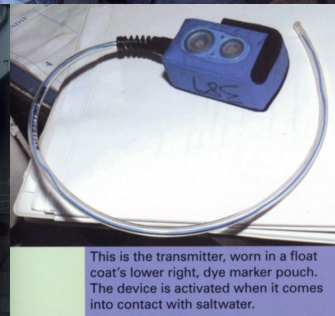
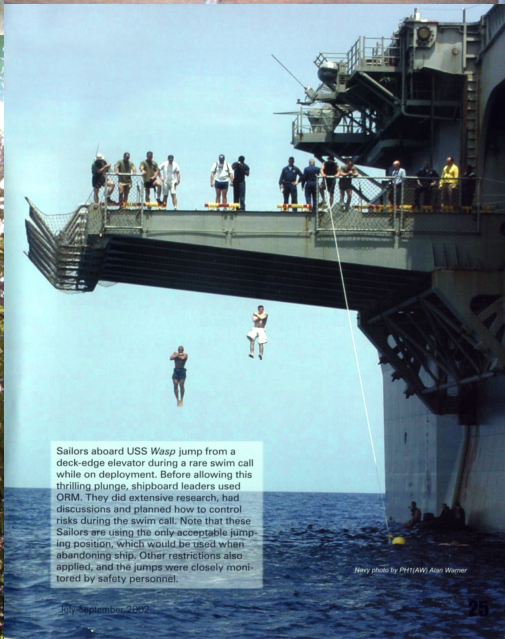


# Features

- Traffic, off-duty, ship on-duty incidents, fire, OSH, recreation, athletic, high-risk training, and explosives & weapons
- Hats Off
- Our Dying Numbers
- Lucky Bag
- Binnacle List
- Back-cover safety posters
- Annual traffic-safety issue



# Type Stories





# Sailor's Tragic Story



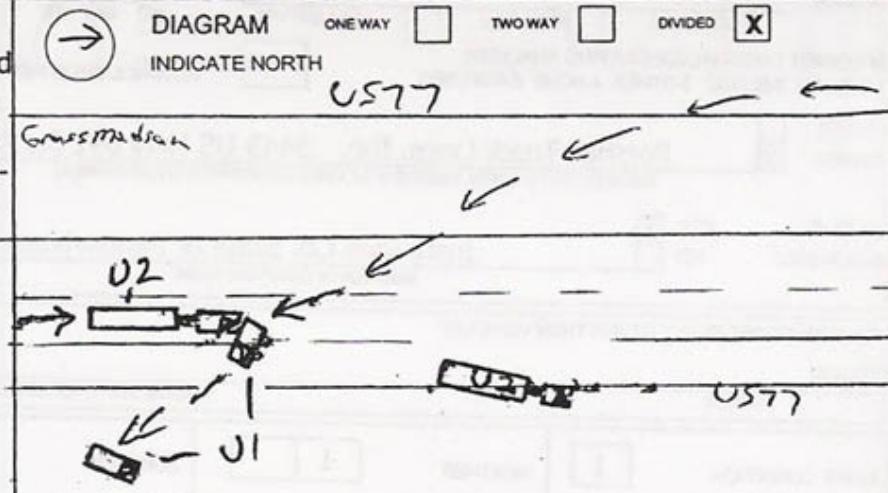


# Mishap Details



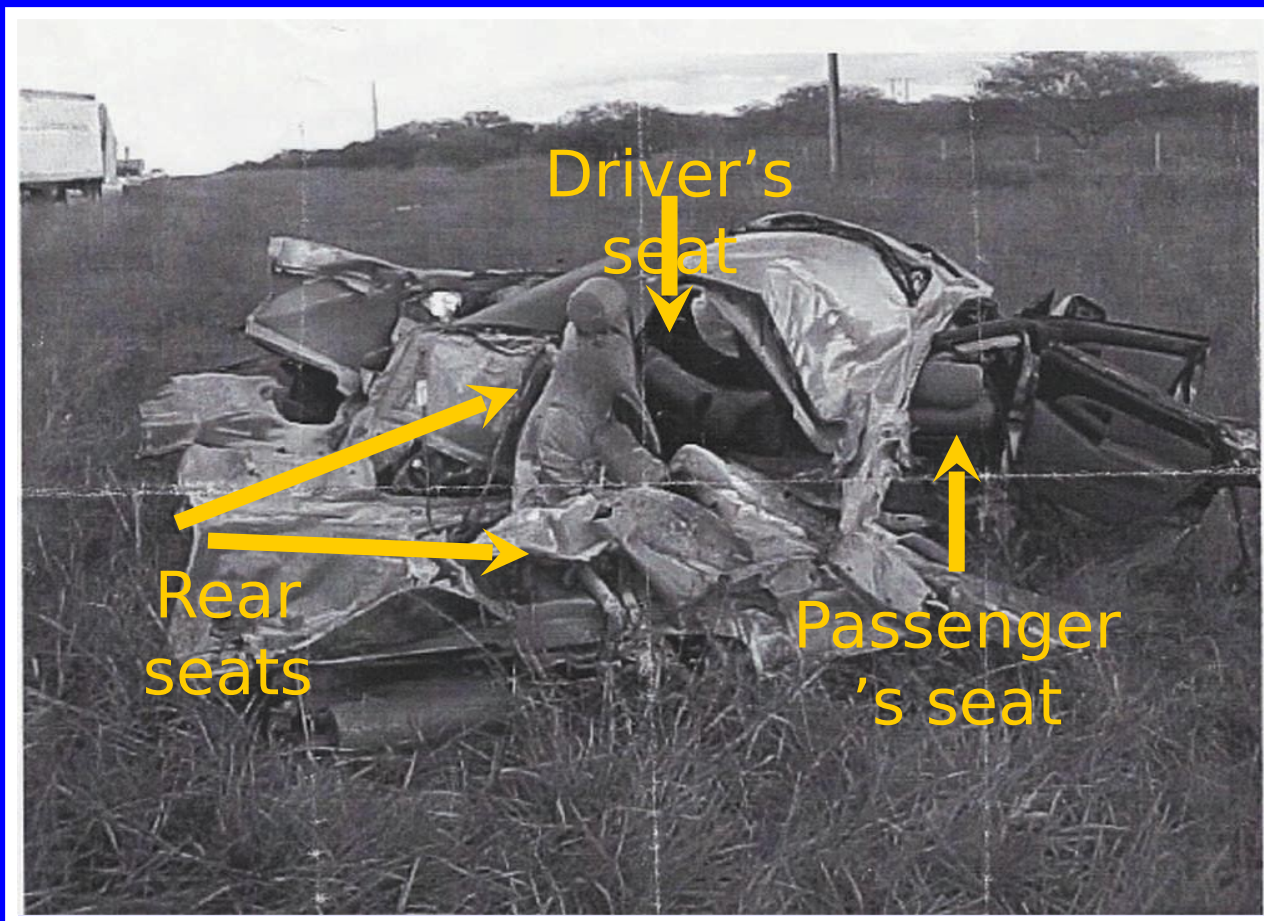
## INVESTIGATOR'S NARRATIVE OPINION OF WHAT HAPPENED (ATTACH ADDITIONAL SHEETS IF NECESSARY)

U1 SB on US77. U2. towing trailer, NB on US77 in outside lane. U1 swerved to the left, causing vehicle to go into side skid as it entered the median. U1 began to rollover. U1 rolled out of the median into the NB lanes. Driver U2 observed vehicle entering his lane, applied brakes, locking wheels. U2 front-right struck U1 right-rear roof and trunk area as U1 rolls into U2's lane. U1 came to rest upright in the NB side ditch. U2 skidded to a stop on the NB shoulder.





# Rest of the Story





# Mishap Stats

## Maintainers...FY95 to FY04

On the Job = 11  
the Field = 38  
Marine

Civilian  
Maintainer

Civilian  
Handler

Navy  
**High Traffic**

**Deaths** - AM3-8,  
AD3-6, AO3-6, AT3-  
5 and ADAN-5

**High Shore**

**Deaths** - AT2-6,  
ATAN-4, AT3-3,  
AE2-2, AEAN-2,

On the Road = 96  
Avg. Rate:

45.93  
AW3 211.76

AZAN 194.17

PRAN 133.33

ADAN 130.86

ABE2 127.12

ABF3 123.46

ABAN 111.02

AM3 108.53

AO3 85.32

AZ3 95.24

On  
Avg. Rate:

65.59  
AW3 235.29

ABF3 176.37

PR3 154.24

AS3 150.83

AZAN 145.63

AS2 140.66

AD3 137.89

AE3 136.88

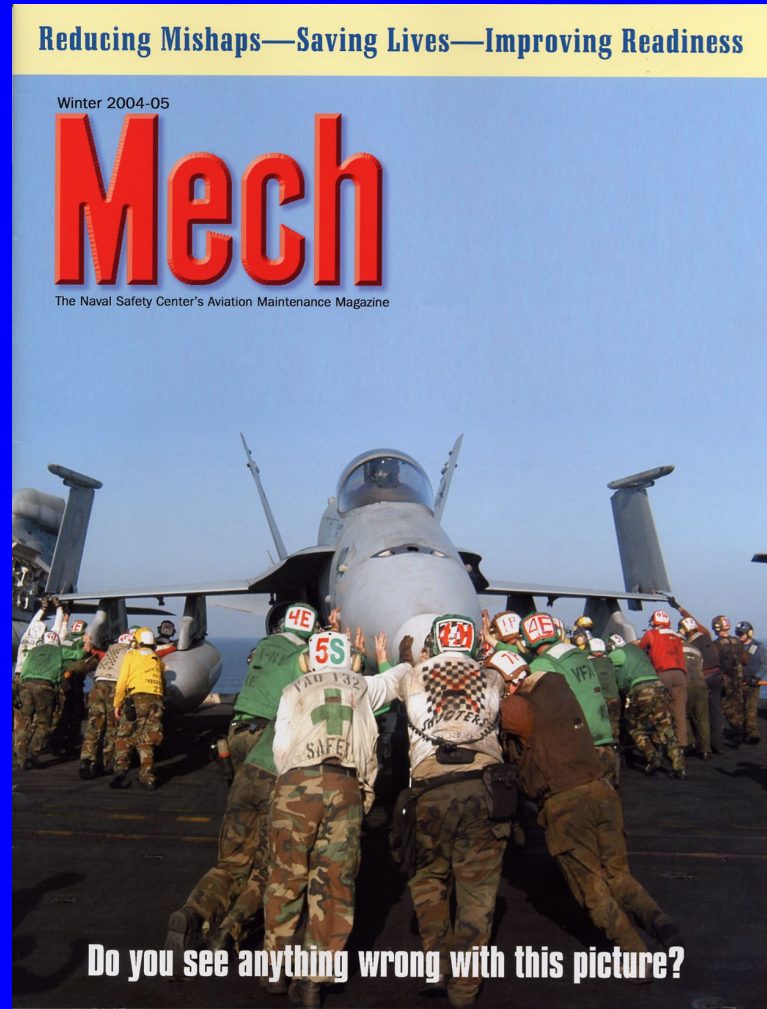
AE2 128.43

PRAN 145.62



**Dan Steber**  
Contributing  
Editor

44  
Years  
of  
Service  
to  
the  
Fleet



**Patrica Eaton**  
Designer



# Mech Facts

- Est. 1961
- Quarterly (15 years as a bi-monthly)
- 17,343 copies
- 1,770 different commands or organizations:
  - Navy, Marines, Air Force, Army and Coast Guard
  - Contractors (Lockheed, Boeing, and others)
  - Government agencies (FAA, NASA, Customs, NTSB and others)
  - Foreign military (Canada, England, Australia, New Zealand, etc.)



# Features

- Bravo Zulus
- Crossfeed
- Air Wing  
Toolbox
- Mishap Stats
- Survey Spotlight
- Work Zone
- Good, Bad & Ugly
- Editorial
- Centerspread  
Posters
- Back Cover  
Posters



# Mech on the Web

- [www.safecenter.navy.mil/mechanical](http://www.safecenter.navy.mil/mechanical)
- Current copies of
- Maintenance Spotlight
- Conference
- Mechanical





# Changes in Maintenance





P, P, P, P, P, P, P



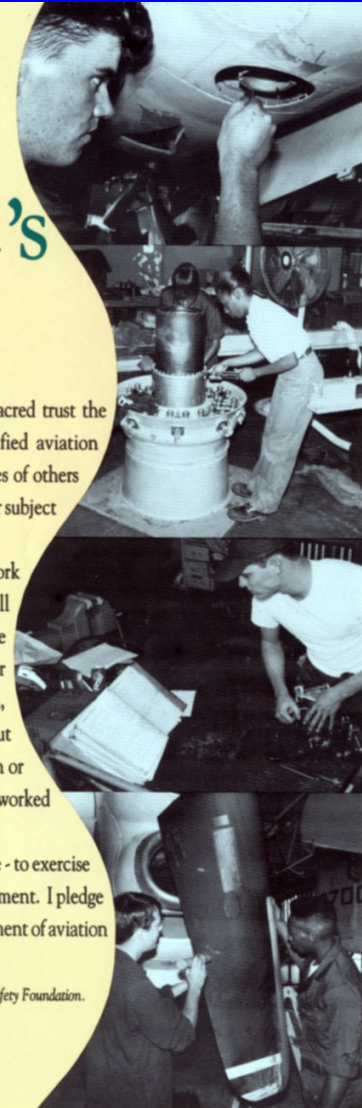
## Aviation Mechanic's Creed

*Upon my honor...* I will hold in sacred trust the rights and privileges conferred upon me as a certified aviation mechanic. Knowing full well that the safety and lives of others are dependent upon my skill and judgment, I will never subject others to risks that I am not willing to assume.

☛ I pledge never to undertake or approve work that I feel is beyond the limits of my knowledge, nor will I allow an unqualified person to persuade me to approve aircraft or equipment as airworthy against my better judgment. I will not be influenced by personal gain, nor shall I pass as airworthy, aircraft or equipment about which I am in doubt either as a result of my inspection or uncertainty regarding the ability of others who have worked on it to accomplish their work satisfactorily.

☛ I realize the grave responsibility that is mine - to exercise my judgment on the airworthiness of aircraft and equipment. I pledge unyielding adherence to these precepts for the advancement of aviation and the dignity of my profession.

*Adapted through the courtesy of the Flight Safety Foundation.*





# Mech Stats

## 6 Maintenance-related Deaths FY00 - FY04

\$501, 022, 099

206

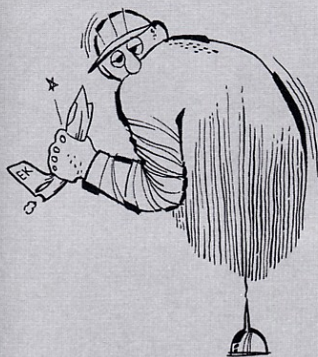
Events

\$100,204,419 per year

41

Events a year

THE  
**MECH**  
as seen by . . .



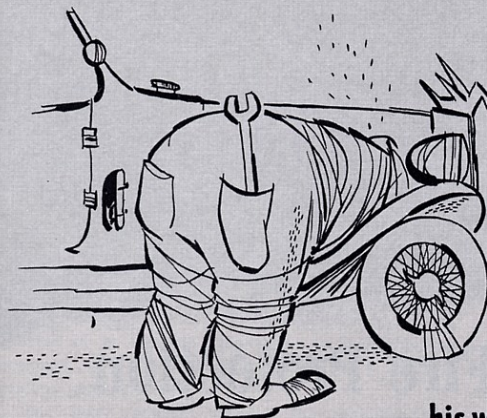
the safety officer



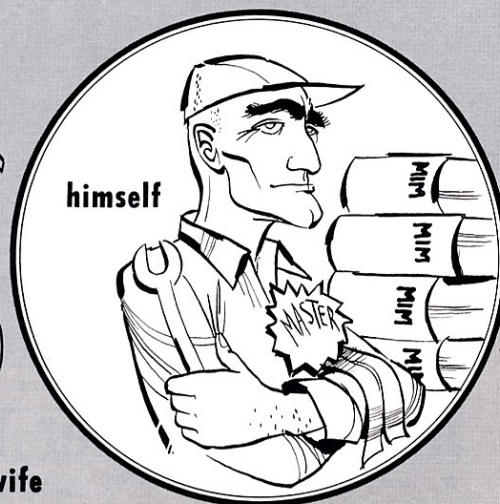
the maintenance chief



the pilot



his wife



himself

Winte  
r

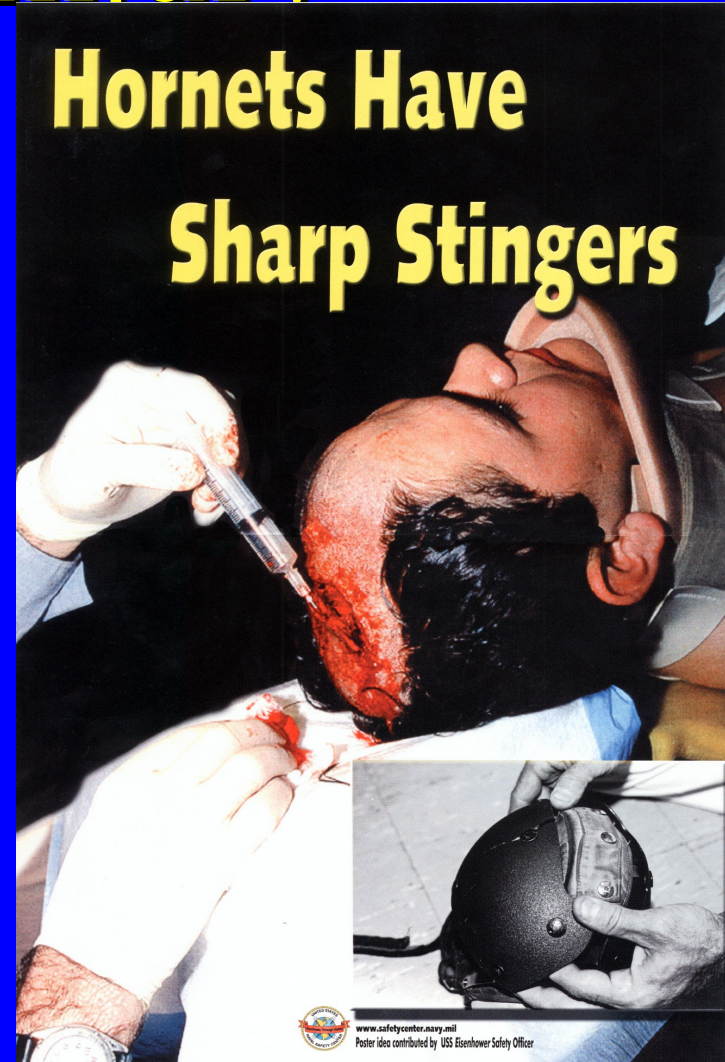
196  
9



# Head Bucket Saves Iniury



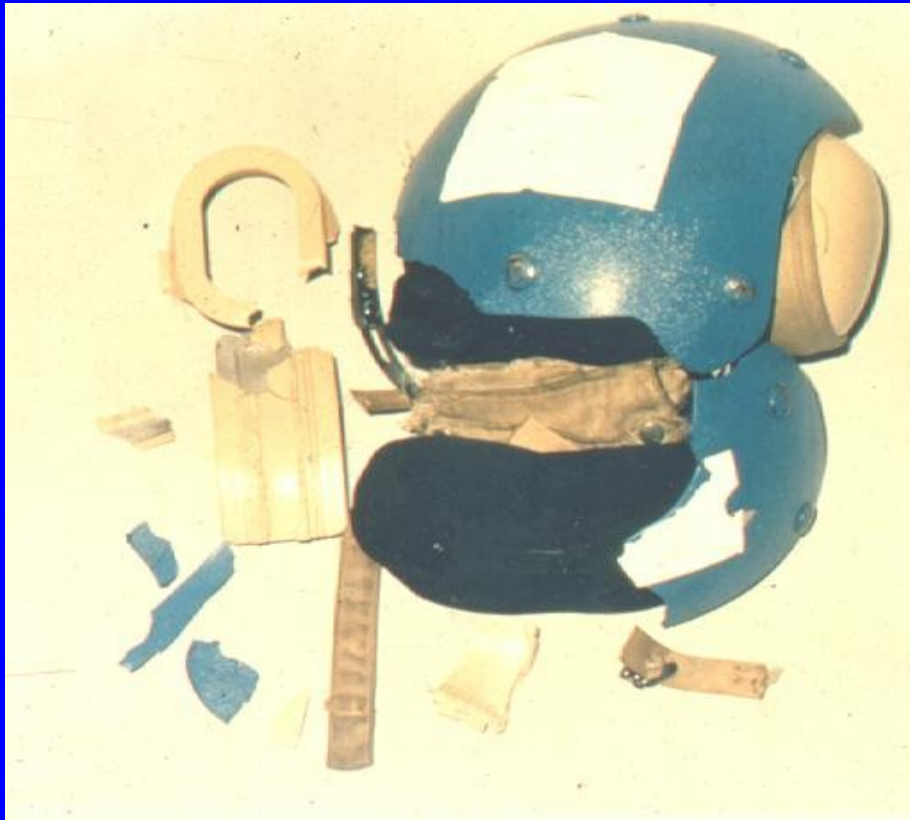
## Hornets Have Sharp Stingers



[www.safetycenter.navy.mil](http://www.safetycenter.navy.mil)  
Poster idea contributed by USS Eisenhower Safety Officer

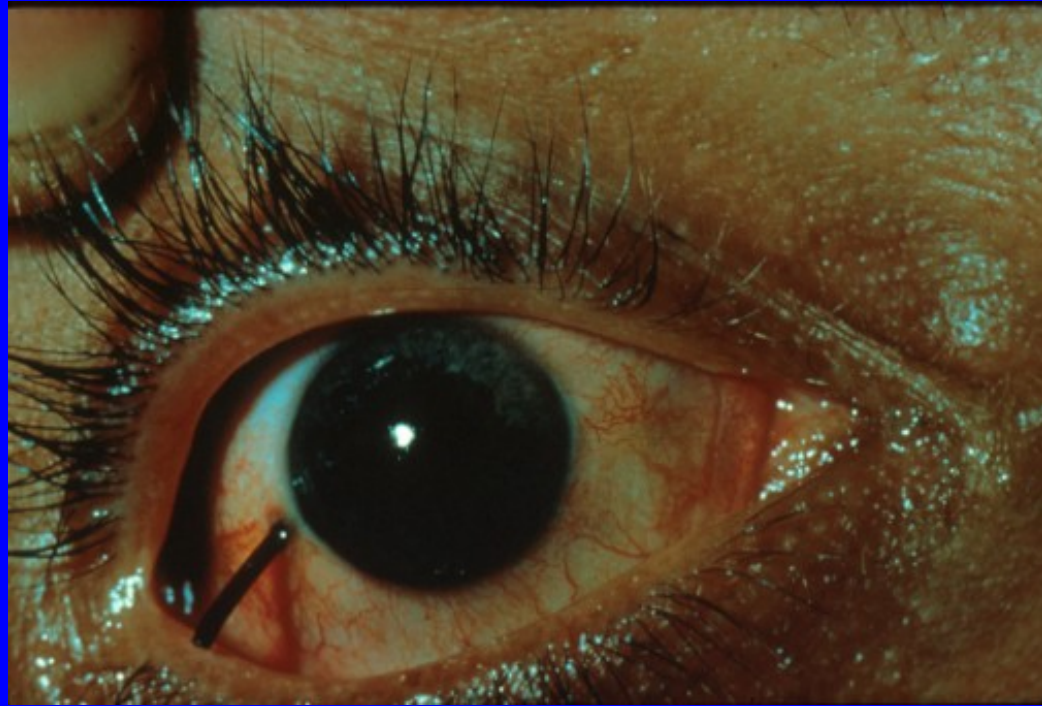


# PPE Problems





# PPE Problems





# Hands/Fingers



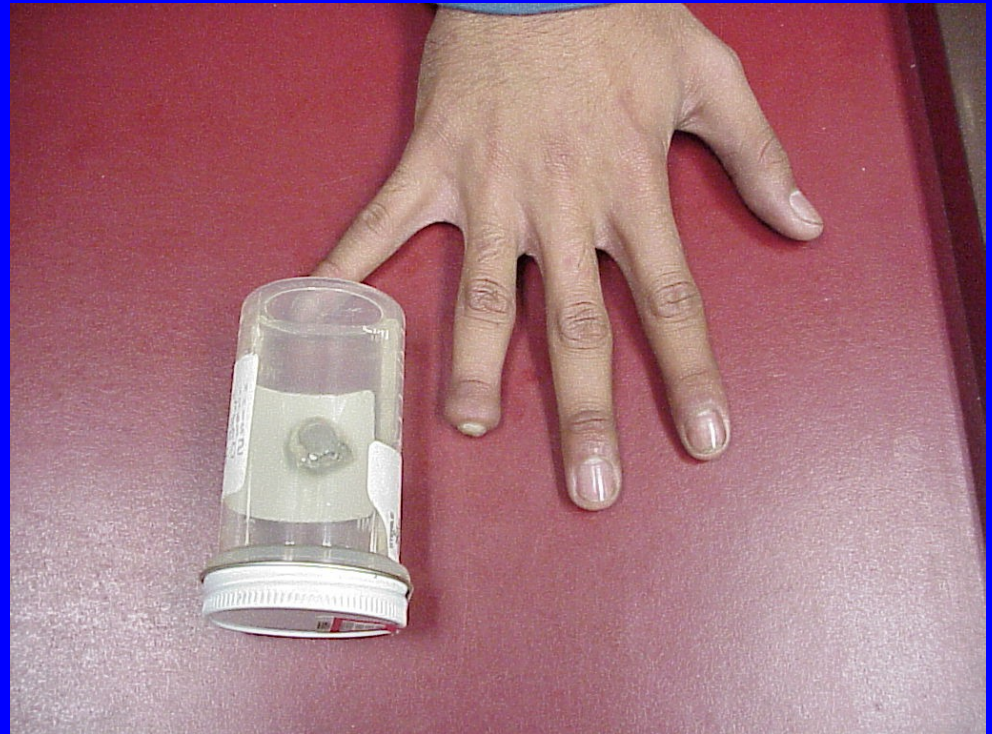
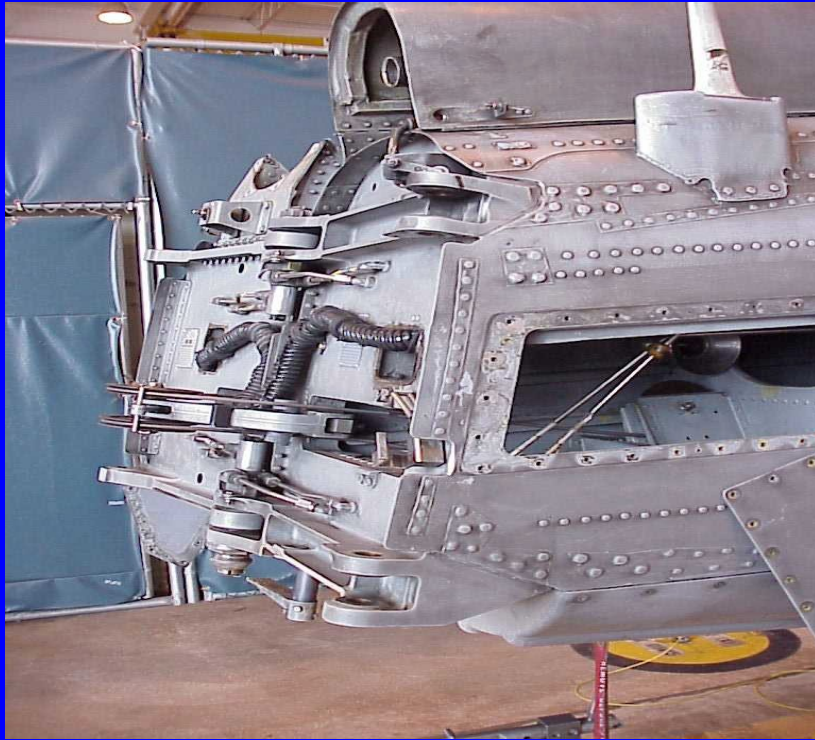


# Hand and Finger Injuries





# Finger in a Bottle





# Faces/Feet





# Hornet Hurts Hoof



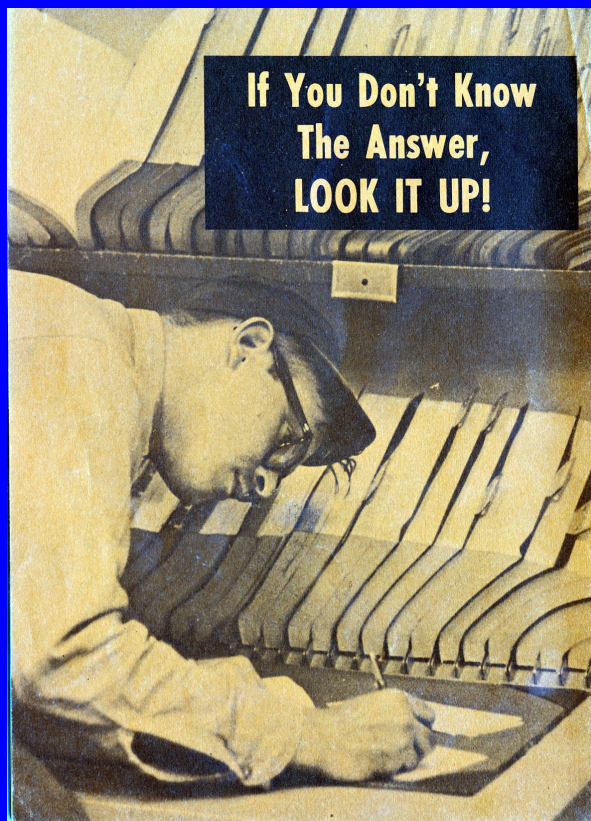


# Stories in the Covers

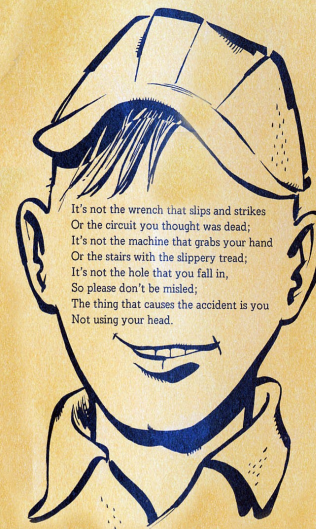


**We must be ever mindful of the mistakes in aviation history or we are condemned to repeat them.**

ComNavAirSafCen Circa '61



**If You Don't Know  
The Answer,  
LOOK IT UP!**



It's not the wrench that slips and strikes  
Or the circuit you thought was dead;  
It's not the machine that grabs your hand  
Or the stairs with the slippery tread;  
It's not the hole that you fall in,  
So please don't be misled;  
The thing that causes the accident is you  
Not using your head.

PASS  
IT  
ALONG!



Each copy of  
**Mech**  
is meant for  
ten readers.



# Stories in the Covers

## Batteries: Lithium or Mercury



# They EXPLODE!

Naval Safety Center  
375 A Street  
Norfolk, VA 23511-4399

mistakes that I made that led up to the final event:

- Rushing to complete the maintenance action.

- Complacency in using the port catwalk for access to the flight deck.

- Not getting into the proper flight deck uniform when it was called away on the SMC.

- Overly engrossed in the task at hand and oblivious to the hazards of the environment.

- Not protecting myself by properly fitting and strapping on my cranial helmet when the job was complete.

- Heading for the port catwalk (out of habit) to least a hasty retreat, instead of using the starboard side of the island.

- In my haste to clear the flight deck, I did not take proper notice of the surrounding events and the hazards I had to avoid.

It was a hard lesson to learn, but not one to be soon forgotten.

Another thing I learned was to listen to my division officer. He'd told us to bring along an extra pair of our prescription glasses in case something like this happened, but since it could never happen to ME, I had neglected to bring an extra pair!

AT3 Dickson W. Caldwell, USN  
VAQ-137 Avionics

### The Shocking Experience

Naval Weapons Center, China Lake, CA — Just another routine battery change. Take it out of the aircraft, pull it on a cart to the battery locker, then exchange it for a new one. "Yeh, yeh, yeh... I know what I'm doing; I've done this a thousand times before. Big deal!"

Although A03 Timothy M. Hill didn't have this attitude when he changed the battery on one of the station's helos, how many of us have felt this way about seemingly mundane, everyday, "ho-hum" jobs? This job was going fine until the battery was lifted onto a work counter in the battery locker. It was at this time that Petty Officer Hill noted flashes and smoke coming from

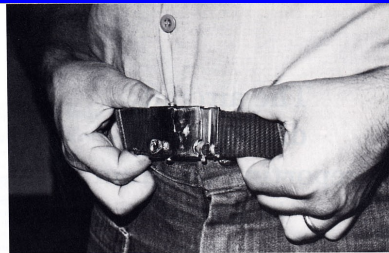
the battery. After putting the battery down on the counter and looking around for the source of the flashes and smoke, he noted that the battery's terminals were blackened. Looking further, he then noticed that his belt buckle was damaged; the damage included two 1/4-inch holes burned through the face of the buckle and welding of the metal belt tip piece to the buckle.

This time no one was injured, but what would it have taken to turn this event into a very unpleasant experience or even a catastrophe? ... not much! What might have happened if the buckle had made contact with the skin, a ring, or a watchband, or if the battery (or one nearby) had been gassing, is anyone's guess.

In addition to being a thermal runaway hazard, acid batteries can also provide you with a "shocking experience." The maintenance personnel at China Lake now have a healthier respect for acids and how to handle them.

LCDR E. J. Lancaster, USN  
Aviation Safety Officer

▲ Words can describe a situation, but the use of photos allows you to graphically present a vivid example of what happened and the damage that actually occurred. Reread, look, and heed!



Photos by PH1 Martin A. Scott, USN, NWC,  
China Lake

SUBSCRIPTION ORDER FORM

ENTER MY SUBSCRIPTION TO:

Domestic: \$ Foreign: \$

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY STATE ZIP CODE

PLEASE PRINT OR TYPE

HWY COUNTRY

☐ Remittance Enclosed (Make checks payable to Superintendent of Documents)

☐ Charge to my Deposit Account No. ....

MAIL ORDER FORM TO:  
Superintendent of Documents  
Government Printing Office  
Washington, D.C. 20402

Fall 1982

## Safety Considerations — On and Off the Job

Capt. J.H. Glosien, USMC  
Training Department  
NAS Whiting Field  
Milton, FL

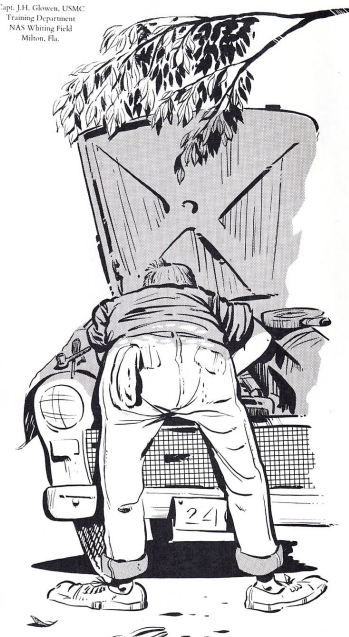
ONE evening I set out to change the oil in my girlfriend's car, a chore I had been procrastinating about for many days. After accomplishing this type task hundreds of times during my college days as a service station employee, I reasoned changing the oil in her car would be quick and easy. Her car was one of those sporty compacts with the engine mounted sideways. The designers had allowed plenty of room to work on the engine and, in this case, the oil filter was right up front next to the alternator. I figured I could easily get my hands in there and the oil would not run all over when I removed the filter. As I twisted off the filter, I saw two large sparks fly from my hands. My first thought was "I'm alive and not hurt!" In fact, I didn't feel anything. Where did the sparks come from? I guessed they must have come from the alternator terminals next to my hand. But why, I hadn't been using any tool!

Then I recalled an article I'd read recently concerning an avionics technician who had been zapped when his watch made an electrical contact. Indeed, I was wearing my watch when I saw the sparks. Interestingly, I remember wondering if I should take off my watch before starting on this job, but decided against it since I surely wouldn't scratch it up on this easy job.

I was relieved to see my expensive watch was still in one piece and my arm wasn't burned. However, what I did find were two marks on the metal chrome edge of the watch near the 9 and 12 o'clock positions. I was lucky! I wasn't burned and the watch didn't weld to the alternator terminals. I learned a valuable lesson. If you instruct your personnel not to work on aircraft while wearing jewelry, apply it to everyone (yourself included) even when working on autos off the job. I also learned that complacency can bite you anytime/anywhere, and as always, when you least expect it.

You can bet in the future my watch and any other jewelry will be on the kitchen counter whenever I go to work on a car or any other electrical/mechanical device.

October/November 1985





# Stories in the Covers

[www.norfolk.navy.mil/safecen](http://www.norfolk.navy.mil/safecen)



Photo provided by  
AD2(AW) Joseph A. Marino,  
VAW-116

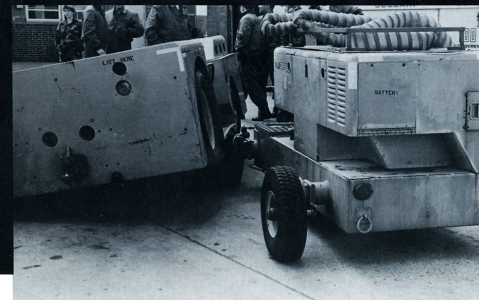


## NEXT TIME:

- Tuck your shirt in
- Put your cranial on
- Get the right work-stand
- Grab a swab and clean up the spill before you start working

Poster idea by AZCS(AW) Dan W. Steber,  
photo by ADC Kevin Grey

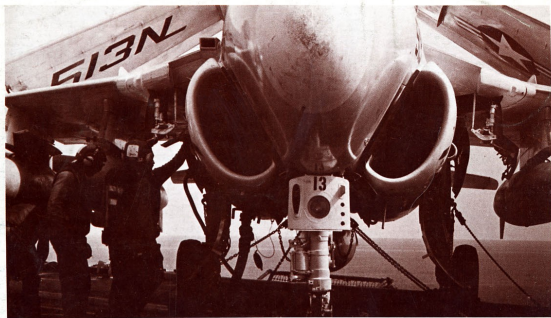
A  
SHORTCUT  
IS THE  
LONGEST  
DISTANCE  
BETWEEN  
TWO POINTS



Poster idea contributed by MAG 49, 4th MAW, FAW, USMC, NAS Willow Grove



# Stories in the Covers



CHECK YOUR POCKETS



YOU CAN'T BUY ANYTHING UP HERE  
BUT ... **DISASTER!**





# Stories in the Covers

## 22

ways an aircraft can kill or injure  
on the flight deck

- Jet Intakes
- Jet Exhausts
- Turning Propellers
- Tires – Running Over You
- Tires – Exploding
- Landing Gear Collapse
- Arresting Gear Hook Dropping
- Canopy – Closing
- Canopy – Emergency Jettison
- Fuel Spill/Fire
- Ejection Seat – Ejecting
- Ejection Seat – Drogue Gun Firing
- Hydraulic Fluid – High-pressure Penetration through Skin
- LOX – See “Man From LOX” for Details
- External Fuel Tanks – Dropping Off
- Ordnance – Dropping Off
- Electrical Shock – External or Internal Power
- Huffer Hose Disconnect During Start
- Exposure to RADAR Radiation
- Hydraulically or Electrically Actuated Surfaces (ailerons, flaps, stabilizers, flaps, slats, speedbrakes, etc.)
- Being “In the Way” During Launch and Recovery Operations

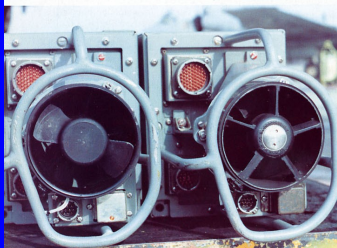
**Stay alert, stay alive.**



Submitted by LCDR R. B. Ayala, USN  
Alaskan Squadron ONE SEVEN SIX  
Naval Safety Center  
NAS Norfolk, Virginia

## AIRCRAFT DO BITE

by Lt. Charles Ryan



Improper fan installation on the UHF radio is on the left where a technician lost half of the little finger of his right hand. The fan was installed backward. Put in correctly, like the fan on the right, the fan would have had the protective cover in the right place.



During a preflight, our in-flight technician suspected that the cooling fan of a UHF radio wasn't working. To check it, he reached around to the back of the radio and placed his hand over what should have been the protective grate over the fan.

Someone had installed the fan backward, and the blades extended beyond their protective housing. They cut off half of the little finger of his right hand.

While most of the crew frantically searched for the finger, others rushed the technician to a local civilian hospital.

They never found the finger. The best the surgeon could do

was to grind down the bone and pull up and sew skin over it.

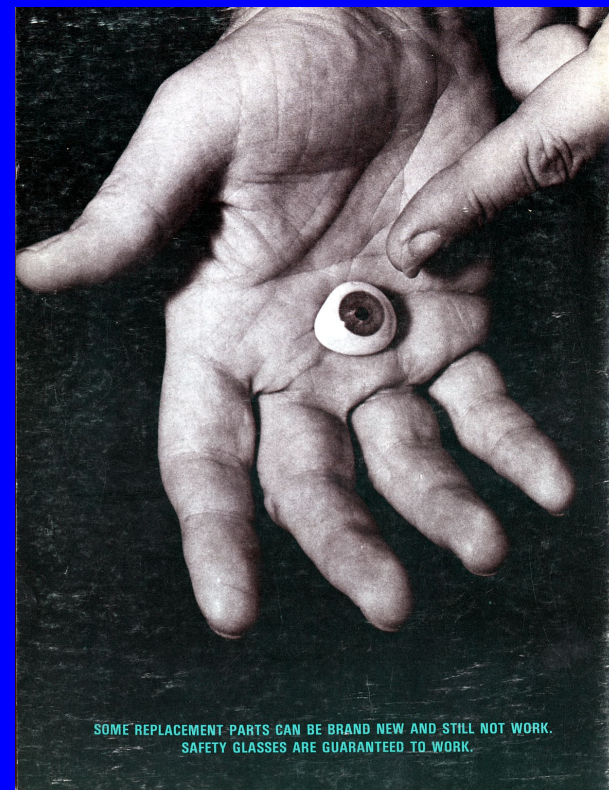
This incident happened the day after a safety standdown. Four other maintenance technicians failed to notice the improper fan installation before the accident.

The squadron had received the radio from AIMD. The improper fan installation was missed by an AIMD inspection technician, AIMD CDI, squadron installation technician and squadron CDI.

Lessons learned can be painful. Let your safety guard down for a moment and you, too, could get bitten.

Lt. Ryan is ASO with VP-40.

Mech





# Stories in the Covers

**What if you had an eye emergency?**

**Keep emergency stations free of hazards**

[www.safetycenter.navy.mil](http://www.safetycenter.navy.mil)  
Poster idea contributed by AM1 John Sheene

**At the Washrack**

By AMSC Mark S. Munday, USN

It had been an exceptionally hot day. After working 14 hours in shorts, T-shirt and tennis shoes, Airman "Stroker" went home, exhausted and with sore feet. He showered and hit the rack. The next morning his feet were causing him great pain and were red, swollen, blistered and burned. On his way to work, he limped into sick bay. The diagnosis was a second-degree burn on the top of his feet, cellulitis (a puffy inflammation of the tissue) and multiple broken blisters. He was awarded 24 hours SIO, seven days light duty, foot soaks every four hours and antibiotics every six hours.

Now, it might feel comfortable to wash aircraft in shorts, a T-shirt and tennis shoes, but was it worth it? I don't think so, and neither does Airman "Stroker." The washrack crew which had been short-handed, became even more so. Let's be realistic. Had Airman "Stroker" been properly outfitted in protective clothing, this would not have happened.

NAVAIR 01-1A-509, "Aircraft Weapons Systems Cleaning and Corrosion Control Manual," states the same warning at least 16 times concerning the use of protective clothing during aircraft washdowns. "When using cleaning compounds Mil-C-02569, Mil-C-43616 or Mil-C-83570 (table A-1, items 9, 10 and 10A); wear faceshield or goggles (table B-1, items 1 or 4), rubber gloves and coveralls (table B-1, items 2 and 7)." Mil-C-43516 contains a

large percent of petroleum solvents. These are toxic to skin and eyes. Mil-C-43516 is also flammable.

A search through the -509 Manual and other pertinent instructions did not bring to light anything that specifically addressed the subject of designated footwear used during aircraft washdowns. However, OPNAVINST 5100.23B, Change 2, Chapter 20, Paragraph 209, provides guidance that whenever foot hazard areas have been so designated by the commanding officer, safety shoes are to be worn. Aircraft wash areas qualify as foot-hazard areas.

Let this be a lesson you should not have to experience. Remember, safety comes first, and most safety notes and warnings came about because somebody "learned it the hard way." Think Safe; Be Safe!

Senior Chief Munday is with the NAIESU Detachment at NAS Barbers Point, Hawaii.

*Protection for the feet is an area we need to pay more attention to. The Safety Center has this problem under consideration and we expect to come out with specific guidance soon. In the meantime, all aircraft wash areas should be considered a foot-hazard area, and protective footwear should be worn. Rubber boots are preferred, but even safety shoes offer some protection. — Ed.*

September/October 1986

**What Am I?**

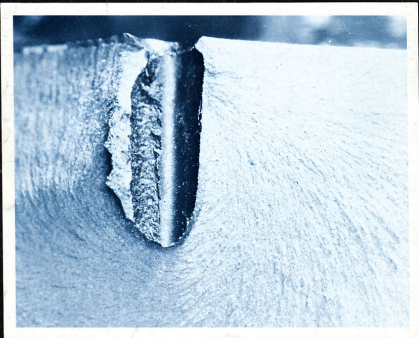
I am oftentimes unseen,  
but of most importance.  
I assure acceptance of your work.  
I am your responsibility.  
I create friendship  
and good will...  
I inspire confidence and  
respect...  
everybody wants me.  
I cost nothing...and I should  
be a part of everyone's  
handiwork.  
I provide for job security.  
I am an integral part of fine  
craftsmanship.

**I AM QUALITY**



# Stories in the Covers

**CORROSION  
IS THE PITS!**



**FIND IT, FIX IT  
—but never forget it!**

Idea contributed by B. SOWERS

**F** is for how FAMILIAR  
we are with the  
problem.

**O** is for the OTHER GUY  
whose fault it  
always is.

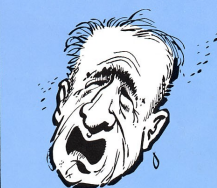
**D** is for the DAMAGE  
caused and the  
DOLLARS it costs.

Idea submitted by VT-9

**Fight Dirty**  
... and live!

The  
Maintenance  
Officer

as seen by



the Commanding Officer



the Supply Officer



himself



his men



his wife



# Stories in the Covers





# Questions





Thank You  
Enjoy the  
Maintenance  
Safety  
Conference

Visit us at SP-91  
Norfolk, VA

